

Remarks

This Amendment is in response to the Office Action dated March 7, 2007. Claims 1-23 are pending in this application. Claims 19 and 20 have been withdrawn from consideration. The Office Action rejected claims 1-18 and 21-24 under 35 USC § 103 over Cumming (US 4144815) in view of Keil (US 6176168); and rejected claim 25 under 35 USC § 103 over Cumming in view of Keil and further in view of Koerner (US 4495851).

By this Amendment, claims 15-17 and 21 are amended, claim 26 is added and withdrawn claims 19 and 20 are cancelled without prejudice or disclaimer. Applicants reserve the right to prosecute all cancelled subject matter in a subsequent patent application claiming priority to the immediate application. Support for the amendments can be found at least in Figure 3. Reconsideration in view of the above amendments and the following remarks is respectfully requested.

Claim Rejections

The Office Action rejected claims 1-18 and 21-24 under 35 USC § 103 over Cumming in view of Keil; and rejected claim 25 under 35 USC § 103 over Cumming in view of Keil and further in view of Koerner. These rejections are traversed.

The rejections do not provide an actual prior art motivation to combine/modify the references in a way that would result in a device meeting the limitations of the rejected claims. The proposed combination also presents difficulties that would dissuade a person of ordinary skill in the art from making the proposed combination – there would be no reasonable expectation of success. Therefore, Applicants assert that a *prima facie* case of obviousness has not been established.

Independent claim 1 recites a system wherein operational power for a fuze is transmitted inductively, and setting data for the fuze is transmitted via an electromagnetic signal. Independent claim 5 recites a similar system, but specifies that the setting data signal is a radio signal.

Cumming teaches a system that transmits both power and setting data to a fuze via a microwave signal when the fuze is chambered in a gun barrel. See abstract and Figure 1, provided below. The system uses a probe 20 to penetrate the gun barrel 10, and the inner wall of

the gun barrel 10 acts as a waveguide that guides the microwave energy to the fuze 14. See column 2, lines 21-25. The microwave energy includes an initial continuous-wave signal followed by a modulated carrier signal. See column 2, lines 57-66. The initial CW signal is converted to DC voltage for power, and the modulated signal carries setting data. See column 3, lines 8-26.

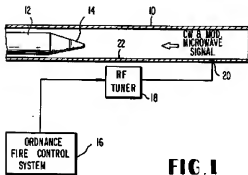


FIG. 1

Keil teaches an alternative system that uses inductive coils and transmits both power and setting data to a fuze via an inductive signal. A transmitter coil 24 generates the inductive signal, which is received by a receiver coil 14 in the fuze. See e.g. Figure 1.

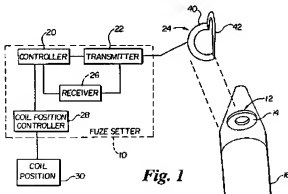
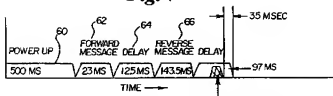


Fig. 1

The inductive signal includes a power up phase 60 and a modulated forward message phase 62 that includes the setting data. Keil is also capable of receiving a "talkback"

signal 66 from the fuze, wherein the receiver coil 14 in the fuze transmits data back to the transmitter coil 24 in the setter to verify the setting data. See Figure 7, provided below, and column 4, lines 16-31.

Fig. 7



Thus, Cumming and Keil teach alternative devices and methods for achieving a similar result – powering and setting a fuze. Cumming accomplishes the task using a microwave signal and equipment that is constructed and arranged to send, receive and interpret the microwave signal. Keil accomplishes the task using an inductive signal and equipment that is constructed and arranged to send, receive and interpret the inductive signal. Keil is further capable of the reverse “talkback” signal that verifies the setting data. Thus, the Keil device is more desirable, both because of the talkback function and because the inductive signal is safer for operators than the microwave signal.

In order to reject under 35 USC § 103, the prior art must suggest the desirability of the claimed invention. See MPEP § 2143.01. The combination of Cumming and Keil fails to suggest the desirability of the claimed invention.

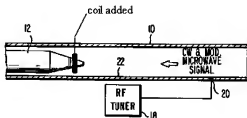
To arrive at the claimed invention, both references would have to be dissected into component parts, and certain components from each reference would have to be used. For example, Cumming’s microwave signal must be modified to remove the initial CW signal, leaving only the setting portion of the signal. Keil’s inductive signal must be modified to remove the modulated setting portion, leaving only the power up phase. Then Keil’s inductive power up signal must be used along with Cumming’s microwave setting data signal. A person of ordinary skill in the art would recognize that such a system would have to duplicate parts from both Cumming and Keil in order to receive and interpret both microwave and inductive signals, thereby creating a system with more components than either Cumming or Keil alone. The rejection

provides absolutely no motivation to dissect the references and combine component parts in this way. Absent an impermissible hindsight use of Applicants' disclosure, there is no motivation to make the combination proposed in the rejection.

The Office Action asserts, "The suggestion/motivation for doing so [combining/modifying the references] would have been to obtain a fuze setting system that could effectively communicate between the fuze and the setter yet was safe and did not contain internal power prior to programming." See Office Action at page 3. This statement does not present an actual motivation to modify the references. Keil already teaches a setting system with talkback capabilities, wherein the fuze does not contain internal power prior to programming.

A person of ordinary skill in the art would recognize that Keil provides an alternative device and method for accomplishing a function similar to Cumming, with the added benefit of a talkback signal. There is no motivation to combine Keil and Cumming because there would be no benefit – the Keil device already provides the fuze with any data that could be transmitted by a Cumming fuze setter, and the inductive signal used by Keil is safer than the Cumming microwave signal. Therefore, instead of modifying the references as proposed in the rejection, a person of ordinary skill in the art would simply use the Keil fuze setter.

The proposed combination also presents practical problems that would work against any motivation to combine the references. A person of ordinary skill in the art would recognize that a transmitter coil must be located in proximity to the fuze's receiver coil for the inductive signal to be conveyed between the coils. Because Cumming uses the gun barrel as a waveguide and only transmits the microwave signal to a fuze positioned in the gun barrel, the transmitter coil would also have to be placed within the gun barrel, for example as shown below in a marked version of Cumming Figure 1.



A person of ordinary skill in the art would not position a transmitter coil within the Cumming gun barrel because gun barrels generally must be free of such obstructions. If the projectile is accidentally fired when the transmitter coil is in a programming position, essential components of the setting system would be destroyed, and the launch platform (e.g. a tank) would be rendered inoperable. Gun barrels are also manufactured to exact tolerances, and the insertion/placement of the coil and removal of the coil would present additional drawbacks. Further, since Cumming requires the projectile to be positioned in the gun barrel during programming, other projectiles cannot be fired while the projectile is being programmed. The Keil device, being separate from the gun barrel, is capable of programming one fuze while another projectile is being fired. This additional benefit of efficiency would be negated by the proposed combination. Thus, Applicants assert that the rejection does not include a reasonable expectation of success.

Applicants note that the Application discusses Keil in the Background of the Invention section, and Keil was incorporated into the Application by reference. See page 1, lines 18-19. The Application discusses fuze setting methods similar to those disclosed by Keil on pages 1 and 2. The Application also teaches a potential drawback to such methods, namely being incapable of satisfying high data transfer rates that are required to program newer fuzes that utilize Global Positioning Satellites within desirable time constraints. Thus, the Application teaches a desirability of the claimed invention. There is no similar teaching in the prior art applied by the rejections.

Further, with respect to the "talkback" signal, Applicants note that Keil's talkback signal is accomplished by an inductive signal, whereas Applicant's invention uses the electromagnetic/radio signal for the talkback functions.

With respect to the rejection of claim 25, Keorner does not provide any motivation to modify Cumming or Keil in a way that would arrive at a device meeting the limitations of the pending claims.

In view of the foregoing remarks, Applicants assert that the rejections do not present a *prima facie* case of obviousness against the pending claims. Accordingly, Applicants request withdrawal of the rejections.

Conclusion

Based on at least the foregoing amendments and remarks, Applicants respectfully submit this application is in condition for allowance. Favorable consideration and prompt allowance of claims 1-18 and 21-26 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in better condition for allowance, the Examiner is invited to contact Applicants' undersigned representative at the telephone number listed below.

Respectfully submitted,

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